Restoring Rivers:

Major upcoming dam removals in the Pacific Northwest

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Over the next several years, six major dams will be torn down to restore some of the most storied rivers in the Pacific Northwest – rivers like the Rogue, Elwha and White Salmon.

These river restoration projects are significant on both a regional and national scale.

The Elwha's Glines Canyon Dam will be the tallest dam ever removed in our country.

Removing these outdated dams to restore free-flowing, healthy rivers will bring benefits to communities and will give an important boost to regional salmon and steelhead recovery efforts.

The removal of these big dams represents an important change in how the region, and the nation, views its rivers – a realization that a healthy, free-flowing river can be one of a community's most valuable assets.

Looking down the face of the Elwha's Glines Canyon Dam

While dams will continue to be an important part of the Northwest's economy, there are dams whose costs – to the environment, economy and communities – outweigh their benefits. American Rivers helped negotiate the dam removal agreements for most of the rivers listed below.

The following is a list of major upcoming dam removals in the Northwest where dates have been set. Other deconstruction efforts are underway across the region to remove smaller dams and other blockages to fish migration (like antiquated culverts). More information is available upon request.

Summer 2007 and summer 2008

Bull Run project, Sandy River (Oregon)

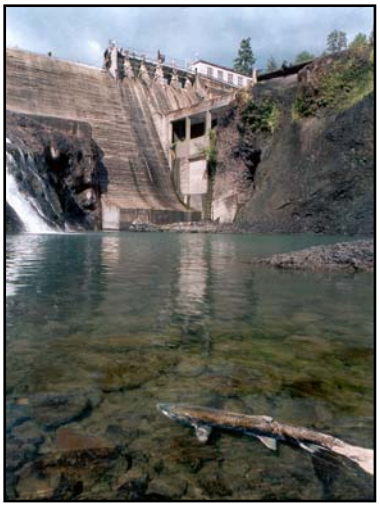
- Marmot Dam to be removed from Sandy River in summer 2007
- Little Sandy Dam to be removed from Little Sandy River in summer 2008

Marmot Dam will be the first big dam removed in the Northwest in over 40 years. Once the dams are gone, the Sandy will be a free-flowing wild river – quite exceptional, so close to a major metro area. The Sandy is Portland's "backyard river", offering outstanding recreation opportunities. Stretches of the Sandy are already protected as Wild & Scenic. The dam removal deal includes the creation of a 5,000 acre conservation area, which will help protect the health of the rivers and improve recreation.

At a glance:

- Location: about 40 miles outside Portland, OR
- Year built: 1912
- Power capacity: 22 megawatts
- Sediment behind dam: Approximately 750,000 cubic meters behind Marmot
- Size of dams: Marmot Dam, 47 feet high; Little Sandy Dam, 16 feet high
- Miles of habitat that will be restored: 6.5 miles of habitat above Little Sandy dam will be accessible upon dam removal
- Fish species that will benefit: winter steelhead, spring and fall chinook, coho
- Cost of removal: $17 million
- Dam owner: PGE

Fall 2008



Condit Dam, White Salmon River (Washington)

- Condit Dam to be removed in October 2008

There is incredible opportunity for the White Salmon River to once again be home to abundant wild salmon and steelhead runs. Once Condit Dam is removed, fish in the White Salmon will only have to pass one dam (Bonneville) on their way from the Pacific Ocean to their spawning grounds. Designated as a Wild & Scenic River, and as part of the Columbia River Gorge National Scenic Area, the

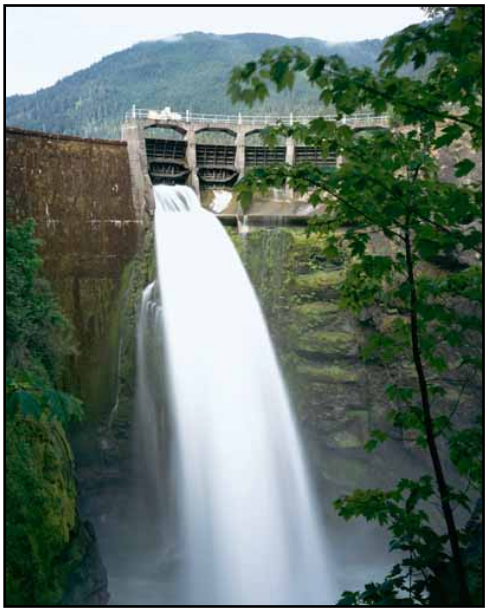
White Salmon River already enjoys excellent protections from headwaters to mouth. The river is nationally recognized as a premier whitewater destination – ten outfitters run commercial trips on the river, and at least 25,000 boaters use the river each year.

At a glance:

- Location: about 65 miles east of Vancouver, WA
- Year dam was built: 1913
- Power capacity: 14.7 megawatts
- Sediment behind dam: 2.7 million cubic yards
- Size of dam: 125 feet high, 471 feet wide
- Impoundment: 1300 acre-feet
- Miles of habitat that will be restored: 33 miles for steelhead; 14 for chinook
- Fish species that will benefit: steelhead, spring chinook, fall chinook, coho
- Cost of removal: $20 million
- Dam owner: PacifiCorp

2009

Elwha Dam and Glines Canyon Dam, Elwha River (Washington)



- Elwha Dam and Glines Canyon Dam to be removed between 2009 and 2011

The Elwha is one of the Pacific Northwest's legendary salmon rivers, once home to abundant runs of all six species of salmon, including 100-pound chinook. Runs of 400,000 fish are expected to return in roughly 20 years, following dam removal.

The Elwha represents the first time the federal government acquired hydropower dams for the purpose of removal and river restoration. Glines Canyon Dam (210 feet) will be the tallest dam ever removed in the U.S.

The dam removal is expected to give a major boost to salmon recovery efforts in Puget Sound, and will significantly increase the food source for endangered orca whales. With most of the watershed protected within Olympic National Park, the Elwha will serve as a one-of-a-kind laboratory to study river restoration following a large dam removal.

At a glance:

- Location: 10 miles southwest of Port Angeles, WA
- Year dam was built: Elwha Dam, 1913; Glines Canyon Dam, 1927
- Power capacity: Elwha Dam (4 generators), 14.8 MW; Glines Canyon Dam (1 generator), 13.3 MW
- Sediment behind dams: Elwha Dam, 4 million cubic yards; Glines Canyon Dam, 14 million cubic yards
- Size of dam: Elwha Dam, 108 feet high; Glines Canyon Dam, 210 feet high
- Impoundment: Elwha Dam, 5,600 acre-feet; Glines Canyon Dam, 31,000 acre-feet
- Miles of habitat that will be restored: over 70 miles of mainstem and tributaries will become accessible
- Fish species that will benefit: Chinook, chum, pink, sockeye, coho, steelhead
- Cost of removal: $185 million
- Dam owner: US Department of Interior

For more information, visit www.AmericanRivers.org/Elwha

Savage Rapids Dam, Rogue River (Oregon)

- Savage Rapids Dam to be removed by Dec 2009

Savage Rapids Dam's fish ladders and screens are outdated, and fish are injured, delayed and sometimes killed while trying to move past the dam. Removing the 80-year-old irrigation diversion dam will give salmon and steelhead unimpeded access to over 500 miles of spawning habitat upstream of the dam, including 50 miles on the mainstem Rogue. A 1995 Bureau of Reclamation study estimated that dam removal would result in 114,000 more salmon and steelhead each year valued at approximately $5,000,000 annually.

At a glance:

- Location: 5 miles upstream of Grants Pass, OR
- Year dam was built: 1921
- Power capacity: None (dam is for irrigation diversion)
- Size of dam: 39 feet high, 500 feet long
- Impoundment: N/A
- Miles of habitat that will be restored: improved access to 500 miles of habitat
- Cost of removal: $28 million
- Dam owner: Grants Pass Irrigation District

Dam removal facts

How many dams have been removed nationwide?

- 654 dams have been removed in the United States
- 212 dams have been removed since 1999
- 58 dams were slated for removal in 2006

Have dams been removed before in the Northwest?

Yes. Examples include:

- Hunters Dam (Wash.) Removed in late-1990s (65 feet tall)
- Grangeville Dam (Idaho) Removed in 1963 (56 feet tall)
- Lewiston Dam (Idaho) Removed in 1973 (45 feet tall)

More recently, Goldsborough Dam (31 feet tall) on Goldsborough Creek (southwest Wash.) was removed in 2001 to open salmon habitat. Rat Lake Dam (32 feet tall) on Whitestone Creek (near Brewster, Wash.) was removed in 1989 because of severe safety deficiencies.

What's the tallest dam ever removed in the U.S.?

- Occidental Chem Pond Dam D (Tenn.) Removed in 1995 (160 feet tall)

How many dams are there in the U.S.?

- 79,000 dams over six feet tall, and tens of thousands of smaller dams

What state has the most dams?

- Texas (6,798)

What is the largest dam in the country?

The size of a dam can be measured in a number of different ways. According to the National Inventory of Dams, **Oroville Dam**, on the Feather River in California, is the tallest dam in the United States, measuring in at 770 ft. The dam with the largest impoundment is **Hoover Dam**, on the Colorado River in Nevada, which stores approximately 30 million acre-feet of water. The dam that provides the most hydroelectric power in the United States is **Grand Coulee Dam**, on the Columbia River in Washington, which generates 6180 megawatts of power.

When it comes to removing big dams, what are the current efforts across the country?

Various groups are advocating for the removal of the following dams:

- Matilija Dam, Ventura River (CA) – 160 feet tall
- Lower Snake dams, Snake River (WA) – 98 to 100 feet tall
- Klamath Dams, Klamath River (OR, CA) – 25 to 162 feet tall
- Hetch Hetchy Dam, Tuolumne River (CA) – 430 feet tall
- Glen Canyon Dam, Colorado River (AZ) – 710 feet tall